

Optimizing the Virtual Environment

Five (5) Guidelines for Selecting a Virtual Monitoring & Management Solution

Do you have the right information to make confident decisions about your virtual environment?

Over the past 5 years, virtual environments have moved from 'interesting' to an essential part of the IT Management job description. There are as many challenges as there are benefits, and it's important to have a plan for managing and monitoring this new environment.

Fear not, for below you'll find both the pitfalls of virtual monitoring and management, and how to navigate the maze of competing virtual monitoring and management vendors. In the end, you'll have a clear idea of what solutions will work for you.

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This paper will help IT Managers understand the inherent love/hate relationship with monitoring and managing a virtual environment and provide essential guidelines to help choose the “best fit vendor” for specific needs.

As virtualized servers continue to move from testing to production environments, the threat of process and infrastructure breakdown is mounting.¹ At present, IT departments are precariously exposed to a growing number of virtualization risks, including tumbling down Gartner’s IT Maturity Curve, a model designed to measure an IT organization’s strengths and weaknesses relative to best practices in the field.²

With this in mind, IT managers are looking for solutions that provide better control and a more comprehensive view of their systems – across both the virtual and physical environments. Many are also exploring ways to effectively leverage their existing investments in IT Service Management (ITSM) frameworks, tools, and processes – to extend the value of these assets.³

The Love/Hate Relationship with Virtualization

It’s a complicated relationship. As buying trends and surveys of purchasing intent clearly suggest, IT organizations have fully embraced virtualization from testing environments through to production. However, an array of problematic issues remain, threatening to turn this marriage into a painful one.

Why do enterprises love virtualization?

The cost savings, no big surprise there. Virtualization enables IT organizations to radically cut costs associated with hardware, power, and space. By running more applications on fewer machines, they directly attack the inefficiencies associated with the hardware proliferation in the past.⁴

But there are other gains to love. IT managers can be more responsive by being able to easily provision additional capacity to meet new requests. As a result, IT is able to scale resources up or down to meet the changing demands of the enterprise. These gains in agility and performance clearly reflect well on IT organizations under pressure in today’s fast-paced and hyper-competitive markets.

¹ Mann, Andi, Enterprise Management Associates, “Virtualization and Management: Trends, Forecasts and Recommendations,” May 15, 2008.

² Scott, Donna and Jay E. Pultz, Gartner, “Survey Results: IT Infrastructure and Operations Management Maturity,” June 16, 2008.

³ Haight, Cameron, Gartner, “The Server Virtualization Marketplace,” Feb. 16, 2008.

⁴ Goldworm, Barb and Anne Skamarock, *Blade Servers and Virtualization*, Wiley, 2007.

And, of course, everyone loves being on a winning team. The market for virtualization is expected to grow by 100% annually for the next five years, as more and more companies virtualize their infrastructures. Forrester Research estimates that 24% of servers have been virtualized so far and expects that number to reach 45% in 2009.⁵

So what's the problem? Why do enterprises also hate virtualization?

One of the chief reasons is that incumbent tooling and process – including ITSM frameworks – tend to break down under the complex stresses of virtualization. Moreover, the real-time computing made possible in a virtual environment often disrupts existing processes. Whether provisioning asset management or engaged in Information Technology Infrastructure Library (ITIL) processes, process breakdowns are becoming a common, yet unacceptable, occurrence.

Yet another problem revolves around complexity and staffing, as companies are seeing no saving in labor costs. Why? Virtualization can make IT more complicated. Considering that virtualization is a new technology, it's difficult to find people that have the skills and experience to run it properly.⁶

In addition, IT managers are experiencing governance problems due to the unmanageability of their virtualization efforts. Further, they are running into licensing problems. As virtual instances are spun up, they are uncertain whether purchased licenses cover their activities. Keeping track is proving difficult.⁷ Software costs are increasing, as each new instance demands licensing of software, which then escalates costs. Where have the savings gone?

While market demand for virtualization continues to grow, so do the problems associated with managing it. If nothing is done, the pain of virtualization is likely to grow 100% a year as well. IT managers need a solution to make virtual infrastructure easier to manage, to remove compliance problems, and to fit within the existing software (if needed).

Challenges Facing IT Managers as Virtualization Surges Ahead

Facing the virtualization wave, IT managers are struggling to keep their heads above water with a number of key challenges. In order to capitalize on this powerful trend and ensure IT Departments are meeting the expectations of the enterprise, managers must address these challenges fully and effectively.

⁵ Babcock, Charles, *Information Week*, "Virtualization's Promise and Problems," May, 16, 2008.

⁶ Mann, Andi, Enterprise Management Associates, "Virtualization and Management: Trends, Forecasts and Recommendations," May 15, 2008.

⁷ Dawson, Philip and Thomas J. Bittman, Gartner, Virtualization Changes Virtually Everything, Mar. 28, 2008.

Among them:

- **Cutting Costs, Driving ROI, and Maximizing IT Resources:** While server virtualization promises hardware savings of 30-50%, it is offering no savings (and more commonly an increase) in terms of labor cost, from overtime to training to new skills hiring. As the complexity increases, IT managers are struggling to find the talent necessary to manage the operational issues. Indeed, the complexity itself adds to the workload of existing IT professionals. In fact, virtualization is just being rolled on top of IT as just another part of the infrastructure to manage, as far as the business is concerned. As it stands, there is no opportunity to realize labor savings or redeploy IT talent to areas that add higher value to the business. Nor can organizations maximize IT resources if they can't keep track of their virtualization software licenses – another problem hindering IT payback. IT groups presently are concerned that they may be violating license agreements as they spin out new instances. Clearly, an easier (and thus more productive) way to manage and monitor the virtual environment is needed.
- **Managing Continual Change:** While IT organizations are expected to play an increasingly agile role in a fast-changing environment, they are unable to meet this objective if their virtualization software is incompatible with existing ITSM tooling. This may not have been a problem 12-18 months ago when virtualization was used in testing environments, but as virtualized servers move into production, it becomes essential to properly manage and monitor them. According to some industry analyst firms, up to 90% of VMware server installs are not actively managed. As virtualization adoption increases, the risks and threats associated with this “Wild West” approach to unmanaged virtual IT only escalates, leaving unprepared IT managers in the cross-hairs.
- **Managing IT More Proactively:** IT managers may be expected to take a more assertive and responsive approach to IT management, but virtualization threatens to undermine these efforts. For instance, virtualization is causing constant disruptions in terms of provisioning and change management processes, whereas operational departments used to have dedicated servers and stable IT processes. The complexities linked to virtualization can lead to disruptions and downtime that undermine performance. Hard won gains in terms of IT control, standardization, and stability are suddenly lost. As a result, virtualization threatens to drive IT organizations back down Gartner's IT Maturity Curve, setting them further away from best practices in the field.⁸
- **Gaining better Visibility and Control:** Existing monitoring metaphors do not extend to the virtualized environment. They are designed for the physical environment of dedicated servers. It's like trying to fully understand the terrain with a two-dimensional map. What's missing from existing ITSM frameworks is the ability to monitor both physical and

⁸ Scott, Donna, Jay E. Pulz, Ed Holub, Thomas J. Bittman, Paul McGuckin, Gartner, “Introducing the Gartner IT Infrastructure and Operations Maturity Model,” Oct. 1, 2007.

virtualized assets through a ‘Single Pane of Glass’ that acts as an enterprise dashboard. Without clear visibility into this new and dynamic environment, IT lacks the control necessary to deliver predictable performance and results.

- **Proving IT Value to Business:** Yet another challenge facing IT is the necessity to document and demonstrate the business value of IT to the rest of the enterprise. Unfortunately, IT is unable to easily measure and quantify their impact. As virtualization proliferates, conventional measurement tools and approaches are rendered inadequate or even irrelevant. Unable to prove its value to the business, IT becomes vulnerable to budget cuts and employee cutbacks that are not reflective of their true worth to the enterprise. To help solve this problem, Service Level Management (SLA) reporting and monitoring should fit into the virtual strategy and be straightforward to implement.

Caution: There may be a reckoning ahead, especially for IT managers who don’t see what’s coming. At a recent industry conference, one leading analyst told a group of IT managers that they might soon be searching for new jobs if they didn’t quickly take active steps to manage and monitor their virtual environment. No one is safe, he suggested, when it comes to poorly or unmanaged virtual environments.

Fortunately, the message is loud and clear. Many IT departments have already taken the necessary steps toward better virtualization management and monitoring, addressing the associated challenges. Where do we go from here?

The Need for Deep Virtual Monitoring and Management

To lock in and extend the significant gains of virtualization, companies are now actively investing in systems management software that manages and monitors the virtual environment. Realizing that most of the existing ITSM frameworks are not optimized for the challenge of virtualization, they are seeking solutions that either replace or extend their existing IT management tools.

As a result, the hot new category in today’s IT market is Virtualization Monitoring and Management. IT decision-makers increasingly recognize they must have these capabilities in order to ensure IT operations remain in line with today’s best practices and processes.

Advanced solutions in this category offer several key benefits:

- **Better Management of Virtual Asset Relationships.** The true value is not in managing the physical server, but in monitoring and managing the business applications and how service resource dependencies can impact performance. IT Managers must provide their System Administrators with deep metrics to successfully manage their infrastructures. To make the right decisions, administrators need to see an integrated perspective that shows the relationship between ESX server performance and VM workload performance. Now,

not only is the performance of the ESX server visible, but so are the performance metrics of instances and the applications that reside inside them. In addition, the allocation of shared resources is now extremely easy, leading to over-provisioning. This can have a massive effect by wasting finite resources. Advanced solutions provide reporting that clearly illustrates potential dependency bottlenecks, and analyzes historical capacity utilization to help reclaim chronic over-provisioning. This helps resolve resource problems faster, leading to increased capacity and stability.

- **Controlling Virtual Sprawl.** Uncontrolled VM creation ultimately results in virtual sprawl, a state where instances seem to be “lost” within one’s VMware ESX infrastructure. That can be an IT manager’s nightmare, as resources start quickly thinning out. In addition, the optics and perception of shared infrastructure can lead to easy provisioning. The user base might not appreciate that virtual infrastructure is a shared resource and not an infinite one. Advanced solutions address sprawl by quickly discovering ESX servers and automatically providing visibility into running VMs. They automatically find new instances as they are spun up, giving IT managers and system administrators the visibility, control, and auditability required to manage VM lifecycles within ESX. Such solutions also enable systems administrators to see where their instances are migrating to at any given time and assess the performance of that infrastructure.
- **Maximizing Hardware Savings.** The big new wave in virtualization will be increasing the VM density to maximize IT resources. This has huge cost saving implications in terms of hardware, footprint, power, and cooling. Advanced solutions help system administrators easily understand the workload performance characteristics of each VM, leading to increased VM density without sacrificing stability. The end result of density optimization is increased capacity and decreased costs. This ensures IT departments are driving the most out of their IT investments.
- **Reduced Labor Costs through Easier and Streamlined Management.** With advanced Virtual Monitoring and Management, IT organizations gain the capabilities to proactively and responsively address IT problems. The complexities of virtualization no longer become critical hurdles when there is visibility and control over IT assets. This enables companies to reach expected performance levels with fewer people and, when appropriate, redeploy IT professionals to roles that deliver high value to the enterprise. Ultimately, companies can begin realizing the full benefits of virtualization – achieving IT labor productivity gains that match the benefits associated with greater hardware utilization.

Enterprises that possess these strengths are well positioned to begin moving up Gartner’s IT Maturity Curve. They put smart processes in place, standardize operations, and reach a consistently high level of performance. New solutions should put the power back in the hands of

the IT Managers and their System Administrators. That may not be possible with incumbent tooling, but today's advanced approaches to Virtual Monitoring and Management promise to help.

The 5 Guidelines:

What to Look for in a Virtual Monitoring and Management Solution

When enterprises begin looking for Virtual Monitoring and Management solutions, they should ensure the investment delivers the **highest payoffs available at the lowest budget and complexity cost**. Here are some of the key criteria that should help guide these decisions:

1. Comprehensive Visibility through a “Single Pane of Glass”:



“single pane of glass.”

Forward-looking IT managers recognize the need for a consolidated view of IT assets. This perspective must cross domains and environments – both physical and virtual. The new virtual environment should fit right into the overall dashboard view, and not sit outside it. These same Systems Management solutions must also provide visibility across platforms, applications and databases. Look for a single, unified, and comprehensive view of your entire infrastructure – presented through a

2. Sociable Software that Leverages Existing Management Tools:

Companies should seek “sociable” solutions – those that are easy to use and adapt quickly to existing tooling. Try not to rip and replace systems management tooling that IT has already invested in. New solutions should connect – without complexity – to incumbent tools and processes, and leverage that investment.

3. Depth of Metrics:



IT organizations need the same kinds of value and service level measurement tools for virtualization that they have developed for physical infrastructure. However, some traditional methodologies and metrics for evaluating server densities and performance do not apply in virtualized environments (like static image density thresholds and aggregating image metrics). Look for solutions that embed the correct measurement and tracking capabilities for the virtualization eco-system and make them accessible through a dashboard view.

4. Low Total Cost of Ownership:

Expect solutions to be self-deployable with minimal consulting required. One should also expect low cost licensing. Under per-physical-server licensing models, customers can spin up as many instances as they want on licensed servers at no additional cost, helping companies realize the true cost savings of virtualization. Ask for such options. Support should be from subject matter experts (SME) that respond quickly to problems.

5. The Future of Virtualization:



In the years ahead, companies will increasingly expand their virtualization investments across many technologies, from x86 boxes to virtualized “big iron.” Seek a vendor that offers a complete solution for the heterogeneous wave of virtual technologies that are coming. As IBM, HP, and Sun move to new virtual platforms, it will be critical to have performance monitoring, capacity planning, and other capabilities that manage virtualization effectively on these platforms as well as the x86 systems today. Don’t invest in solutions that are limited to only the platforms on the market today. Choose a vendor with clear forward capability and a proven track record.

As virtual environments proliferate across the enterprise landscape, it’s essential that they be monitored and managed. Discussed above are some of the benefits and inherent complexity that virtualization has thrust upon IT. Deep virtual monitoring and management is now an enterprise requirement, and these responsibilities fall squarely on the shoulders of IT. It’s important to understand and have a game plan for: *the management of virtual asset relationships, controlling virtual sprawl, maximizing hardware savings, and reducing labor costs through easier and streamlined management.*

When looking at a short list of vendors for managing and monitoring the virtual environment, make certain the solution has: *Comprehensive Visibility through a “Single Pane of Glass”, Sociable Software that Leverages Existing Management Tools, Deep Metrics, a Low Total Cost of Ownership, and has forward functionality to handle ‘The Future of Virtualization.’*

Consider these criteria as you look ahead for ways to manage and monitor your own virtualization initiatives. Clearly, there will be a great deal of investment in such solutions as IT organizations seek ways to continue rising up the maturity curve and look to solutions that can help them fully realize the payoffs associated with virtualization.

Potential Solution:

'up.time' from uptime software is systems management software created to meet and exceed the problem sets outlined above. up.time is on the cutting edge of deep virtual and physical infrastructure monitoring and management through a 'Single Pane of Glass' and focuses on working with customers 'in the trenches' to ensure up.time is exceeding the needs of its enterprise clients around the globe. uptime software is driven to provide **exceptional value**, proving that with simple, low cost licensing and a flexible and nimble client engagement approach that is unique in the industry. If you are interested in solving problems discussed in this paper, please have your team evaluate up.time to see how quickly and effectively up.time can give you both control and cost savings. up.time can be downloaded and installed to trial in less than ten minutes.



- [Evaluate up.time in Your Environment at no Cost:](#) Risk-Free Trial of up.time with full enterprise SME support included.
- [up.time 9-minute 'up.time' Tour](#)

About uptime software

uptime software - Innovative Systems Management solutions, unique client experience, exceptional value.

uptime software is the creator of “**up.time**,” enterprise IT systems management software. up.time provides a ‘Single Pane of Glass’ view across environments (physical and virtual), platforms, applications, services, and databases. It’s an easy-to-use enterprise proven solution that deploys quickly and integrates with existing tooling and frameworks with no consulting needed. This can lead to a dramatic decrease IT management costs (up to 75% in some cases). For a Risk-Free 30-day trial of up.time, please visit www.uptimesoftware.com.

Companies of all sizes rely on uptime software to deliver IT value effectively. By delivering innovative and award-winning solutions, and an exceptional and unique client experience, uptime helps IT professionals dramatically reduce downtime, maximize capital investment and operational efficiency, and prove the value of IT to its customers.

- ✓ [Evaluate up.time](#): A Risk-Free 30-day Trial of up.time with full SME support included.

‘up.time’ System Management Software:

A ‘Single Pane of Glass’:

Across multiple Locations & Environments: Centrally monitor, manage, and report on your entire global infrastructure, across locations and for both virtual monitoring and management and physical systems monitoring and management. Create customizable, role-based, cross-regional enterprise dashboards and reports to better align and optimize global IT resources. See enterprise-wide service availability and performance from a single dashboard and easily manage global service level agreements and enterprise applications. See across Solaris, AIX, Windows, Linux, HP-UX, Novell, and VMware (server monitoring, capacity planning, SLA Management, application monitoring, IT services monitoring, network monitoring, and full virtual systems and VMware monitoring and management).

Integrate and Deploy Quickly:

Use up.time as a stand-alone Systems Management solution or leverage your existing frameworks and tools by adding up.time to fill gaps like virtual monitoring and management and capacity planning. Don't rip and replace, just add up.time.

Easily Monitor and Manage your Virtual Infrastructure:

IT Directors, IT Managers, and System Administrators can now plan, manage, and monitor their virtual infrastructure better, from dashboard and IT service views right down to the performance metrics of instances and the applications that reside inside them.

Cut IT costs by up to 75%, Time to Value in Minutes not Months:

Get started in less than 15 minutes with hassle-free deployment and snap-in integration with new and existing technologies and vendors. Drive down licensing costs with simple cost per-physical-server licensing, even in virtual environments. Double your capacity and maintain performance without increasing your hardware

A Unique Client Experience:

Achieve IT goals sooner with a flexible and nimble client engagement approach. Get full SME support quickly, when you need it.

Risk-Free “Fast Start” Programs For Enterprises:

Take advantage of a program that offers Complimentary Product, Solution Guides, White papers, Case Studies and Product Related Services designed to get “up.time” running in your environment quickly and risk-free. To learn more about the “**Fast Start**” programs, please contact Gary Mirsky, gary.mirsky@uptimesoftware.com



- [Evaluate up.time in Your Environment at no Cost:](#) 30-day Risk-Free Trial of up.time with full SME support included
- [up.time 9-minute Solution Tour](#)